

February 23, 1962

From: J. Lederberg
To: Quadri-Science

1. Institute for Scientific Information. I am delighted at the indications of progress towards an affiliation. I am confident that it will be profitable in its own right, but far more important that it will be invaluable to us in our own services, and also that we can help a great deal to improve its contribution to scientific communication.

2. Soil stabilizer. Allison's report can't help but make one quizzical. But why don't we get together to research the fundamental issues in a problem like this and come up with a more basic answer. How could a soil stabilizer ~~work~~ work, and how would we go about designing one from first principles? Are we approaching this problem the way we would hope to for one of our ~~at~~ outside clients? Alchemy doesn't appeal to me at all. As a first guess, I would assume we need to identify a cheap polyelectrolyte, more basic than Separan (polyamide), to cross-link exposed silicate ions on clay particles. (Separan is already used for facilitating agglutination of clays and other soils, but probably doesn't bond firmly enough.) It would probably be advantageous to have cationic clusters on a larger polymer. Apart from some obvious, and possibly too expensive organic polymers, I think of something like hydrazine or ethylene diamine plus polysilicate as the "glue". Is this too naive, at least as a starting point? Does anyone of us know whether this problem has already been beaten in to the ground from this standpoint. If not, shouldn't we have a consulting staff that we could pay to give us a "state-of-the-art" report for further consideration?

Urey is probably right about what the "bugs" would eventually do to an organic stabilizer.

I am reminded that they may be some clues on soil crumb stabilization from Monsanto's (expensive) soil conditioner.

3. DuPont. They are the last people I would have thought to come in on the bait, and I am so dubious ~~that~~ they will really bite that I should just stand back. I am not worried at all about their size, but that they are already very much organized, and what we would have to fight through by way of established interests to get anything new done. This would be only a little more difficult than rationalizing the R&D of the US Department of Defense. But if DuPont were willing to organize an ARPA ~~as~~ as a separate company under our surveillance, and with the specific mission of identifying and starting new directions, and setting up the long range planning they need, we might find it workable and interesting. One point though: DuPont has a hell of a bad reputation for fanatical secrecy, far beyond the commonsense requirements of competitive industry, and I would not want to be associated with them without some explicit liberalization on publication. I don't think we could recruit the kind of people we would need for the ~~ARPA~~ ARPA without being willing to take calculated risks in this area.

I will be surprised if they buy this, but the approach is almost the only one that would be consistent with (my views of) the charter of Q-S; if they do go all the way it might alleviate my uneasiness about this particular tieup, but it would not be my specific preference in any case. I would much rather take on a previously undeveloped ~~xxxxxx~~ organization, not one with a large body of policy-competitive technical staff. What about Bell & Howell? They have been moving fast; ~~where~~ do they get their technical direction?

4. I hope to be in N.Y. on March 12-13 and will try to call on Kusch then.

(privately to Chuck & Ralph)

5. Back to DuPont. I am sorry to have to bring up a possible embarrassment, but I must point out what I had mentioned in our initial discussions, my personal obligation to the Syntex Corporation for consultation in the field of pharmaceutical development. This is not necessarily a bar to Quadri-Science participation in chemical industry, but it would be a factor in my own personal participation in studies that came close enough to drugs (especially steroids and nucleic acids) that, e.g., DuPont might have cause for anxiety about the confidence of its proprietary interests. I am sure this is leaning over backwards, but better to keep this in mind now than ask for trouble later. ~~XXXXXXXXXXXXXXXXXXXX~~ I am confident you will have the means to steer clear of these shoals, which must be matched by others.

6. A remark on DuPont. Its obvious field is "Materials Science", and one would assume its main concern is for the bulk markets: e.g., building, clothing materials. Are they missing any bets in the production of non-woven fabrics with their new fibers, that could bypass the huge production costs in traditional textiles? Or have they been fearful of undercutting their huge existing markets for textile fibers? It is hard to believe this won't be the next immense technological innovation of the polymer industry, that is the extension of the present limited application of such fabrics. For items like carpets, textile-weaving seems an especially clumsy method of producing texture.

The relationship of DuPont interests to soil-stabilizer would be too obvious to need mention.